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THE DRESSING OF WOUNDS.

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By FRANCIS W. GOSS, M.D., of Roxbury.

IT is the business of the physician to know things similar and things dissimilar, says Hippocrates, in his Tract on the Surgery; and one may well believe him, in view of the contrariety of doctrines promulgated and enforced in these latter days. Only a few years ago, it was dogmatically declared that wounds should be *excluded from the air* in antiseptic dressings. Now comes an equally urgent advocacy of *leaving them untouched*—the open treatment, as it is called; while between these extremes we have every variety of practice, leaning toward one or the other method, according as the convictions of the practitioner incline him.

Since such diversities exist in the manner of dressing wounds, amounting, apparently, if not in reality, to modes diametrically opposed to each other, it becomes us to consider carefully the various methods which their advocates present; to weigh well the results claimed, as to whether they are fairly stated, or are intentionally or otherwise warped to favor the views advanced; and then to adopt such methods in the dressing of wounds as study and experience convince us to be best suited to our patients.

Few physicians are so situated that they can entirely ignore the treatment of wounds; for, although the majority of the profession may not claim to make surgery a specialty, and may decline to treat the severer injuries or diseases which are classed as surgical, yet almost all of us must attend to such as come under the classification of minor surgery, which, if mal-treated, may result most unfortunately for the patient and the physician.

Probably, from very early times, it was noticed that in injuries where the tissues were so lacerated that the wounds were exposed to the air, the condition was vastly more unfavorable for the restoration of the integrity of the part, and the rapidity of healing, than where the wounds were subcutaneous. Mr. Hunter* divided the injuries done to sound parts into two sorts, according to the effects of the accident. He says: "The first kind consists of those in which the injured parts do not communicate externally, as concussions of the whole body, or of particular parts, strains, bruises and simple fractures, which form a large division. The second consists of those which have an external communication, comprehending wounds of all kinds,

* Works, vol. iii. p. 240, quoted by Paget.

and compound fractures. The injuries of the first division, in which the parts do not communicate externally, seldom inflame; while those of the second commonly both inflame and suppurate." Mr. Paget* states that it hardly seems possible to exaggerate the importance of the principle which Hunter has embodied in these sentences. "For of the two injuries inflicted in a wound, the mechanical disturbance of the parts, and the exposure to the air of those that were covered, the exposure, if continued, is the worse."

The recognition of the fact that wounds to which the air has free access usually inflame and suppurate, has probably given rise to the attempt to render open wounds practically subcutaneous, by means of such dressings as should exclude the air. It is one thing, however, to have the tissues unbroken, and the injured parts not exposed to the air, and quite another to treat as of this class wounds to which the air has once had free admission. Unless we have good reason to believe that art can, by its appliances, render practically subcutaneous a wound that has once been open, it is better to anticipate the probability of inflammation and suppuration, and to provide for them.

The most prominent advocate of modern times for the occlusive treatment of wounds is Prof. Lister, of Edinburgh. Accepting the teachings of Pasteur, that the particles of dust which the atmosphere contains are germs of bacteria or other allied organisms, and are the exciters of the putrefactive changes that occur in wounds, he endeavors by antiseptic dressings to deprive the atmospheric germs of their septic energy, so that whatever air reaches the wound shall contain no particles capable of exciting septic changes in it. The dressings are practically impervious to the air, and are to be applied with scrupulous attention to the minutiæ which the author of the system imposes. He claims in this way to bring open wounds approximately to the condition of subcutaneous ones. His method is briefly as follows:

A piece of oiled silk protective is applied to the skin, over the protective is laid a quantity of antiseptic gauze, folded in several layers, usually eight, while between the two outer layers of gauze a piece of waterproof Mackintosh is placed. The whole is retained by a bandage of gauze, properly applied. While the part is being operated on or dressed, a spray of a solution of carbolic acid is kept constantly playing over it. Vessels are tied with antiseptic catgut ligature, and carbolized silk is used for sutures.

That the plan is a complicated one is evident. It may be carried out in hospitals, but certainly in private practice it can only be followed with extreme difficulty. If the results show it to be superior to any other method, no pains should be spared to adopt it.

Lister, as is well known, claims remarkably successful results for his method. One of his disciples† goes so far as to state that "the antiseptic method itself is not one of the possible modes of managing wounds, it is the only possible one, the only one worthy of modern surgery." Passing by the fact that there is good reason to believe that the theory of M. Pasteur, upon which Lister bases his treatment, is unsound,‡ some eminent surgeons have by no means met with so favorable results as Lister claims to obtain.

Professor John Wood, in his address, delivered before the last an-

* Surgical Pathology, pp. 118, 119.
† Lesser on the Antiseptic System. Edinburgh Medical Journal, March, 1874.
‡ The Lancet, Oct. 11, 1873, page 529.

nual meeting of the British Medical Association, relates his experience regarding the antiseptic system of dressing wounds. He has given, he believes, at King's College Hospital, Lister's method a fair trial. As long as the hospital was healthy, wounds treated by the antiseptic method did remarkably well. After a time, erysipelas and its concomitant pyæmia began to show themselves, "and the erysipelatous blush," says Mr. Wood, "appeared with blameworthy impartiality in cases treated in all kinds of ways, and almost as impartially on my own antiseptic side of the hospital, as on my colleague Sir William Fergusson's non-antiseptic side." Mr. Wood came to the conclusion that, in the generality of wounds, we could not, without danger, depart from the old rule of providing a free exit for all purulent and offensive discharges, and that for the want of this, the exclusion of air was not a sufficient compensation.

Dr. George Thompson writes* that he had used Mr. Lister's methods in his own practice at the Oldham Infirmary, and that at no small sacrifice of time and convenience he had conducted every dressing with the utmost care, but had failed to obtain results in any way better than he had been accustomed to see in dressing by other methods. He therefore visited Mr. Lister's wards to ascertain the cause of his failures. To his disappointment and mortification, he saw cases looking very much like what he had been accustomed to see in other hospitals. In two cases, at least, inflammation and suppuration had occurred after the application of the dressing, and these were explained away in one case by the access of germs, and in the other by the premature removal of a drainage tube. Mr. Lister, in his remarks on these cases, did not for a moment entertain the bare possibility of any failure of the antiseptic system, and the visitors were asked to believe that in these cases putrefaction had been absent, and to observe what an advantage it was to render, as he did, putrefaction an impossibility. Dr. Thompson says he left the wards with the last remnant of his belief in Prof. Lister dissipated to the winds.

Such testimony—and more of a similar purport might be cited—settles, it would appear, the value of Mr. Lister's carbolic acid dressings. Heretofore, he has asserted that the failure of others to obtain as favorable results as his own has been due to the fact that they have not followed his directions in every particular. Both Professor Wood and Dr. Thompson claim to have faithfully complied with Lister's instructions, and to have failed to meet with more success than is obtained by simpler and well-known methods.

Another form of antiseptic dressing is that of cotton-wool. M. Guérin adopted the theory of Pasteur, and, guided by the experiments of Tyndall, which showed that the atmospheric germs were intercepted when air was made to pass through cotton-wool, he made use of this article in the dressing of wounds, hoping thereby to prevent putrefactive changes in them. But as the subject of cotton-wool dressing has been presented in all its bearings to-day,† a passing notice of Guérin's method is all that is now needed.

A favorite method with some surgeons, particularly in the treatment of contused and lacerated wounds of the extremities, is that of immersion in water; either in that which is kept cold by ice, or in that

* The Lancet, Sept. 20, 1873.

† In a paper by Dr. T. B. Curtis, to appear in a future number.

which is warm. Billroth* states that he first saw this plan used by his earliest teacher in surgery, Prof. Baum. Billroth himself has often adopted this procedure with satisfactory results. He thinks there may be considerable latitude allowed as to the temperature of the water, adapting it to the feelings of the patient. At first, a lower temperature (54°–68° F.); later, a higher one (88°–95° F.). The immersion is to be continued from eight to twelve days, and after that it may be employed at intervals.

Dr. F. H. Hamilton, of New York, in a paper on "The Use of Warm Water in Surgery,"† advocates the use of warm water as a surgical dressing in preference to cold. In ten cases, embracing a considerable variety of injuries and diseases that demanded surgical interference, he employed, wherever it was possible, submersion of the wounded part in water, at a temperature of about 90° F. Otherwise, fomentations of warm water were applied by means of compresses, and covered with cotton and oiled silk. In most cases of submersion, the part became considerably, or extremely, œdematous, but in no case did any injurious result occur from the presence of the œdema. The average duration of the submersion was fourteen days. The results obtained by the use of warm water in this way were uniformly good.

Probably the choice of the prolonged use of warm or of cold water should depend on the condition of the patient. A strong man meeting with an injury while in full health, in whom we may anticipate powerful reaction, will endure the application of ice-cold water without harm, if not with advantage; while to one who is constitutionally weak such an application cannot be beneficially made. In any case, the use of cold water should not be too long continued, lest the vitality of the wounded part be impaired, and permanent injury be done. It is worthy consideration whether, for instance, after amputations, the application of ice, which is sometimes made to the flaps for many hours, may not so diminish their vitality as to favor subsequent sloughing. The application of cold water to a wound, as it is ordinarily made, by simply laying a cold compress upon it, is soon converted, by the heat of the part, into a warm-water dressing, and, if undisturbed, in a little time becomes dry.

Poultices, particularly in hospital practice, are much less used than of old. As Billroth puts it,‡ "Formerly, cataplasms belonged to suppurating wounds as undoubtedly as the lid to the box." They are, unquestionably, of value in many cases, but experience has shown that they are not indispensable in the treatment of wounds. As to charpie, which was formerly, if not now, in use in great and unsparing abundance in Paris in dressing wounds, it is often burdensome to the patient from the quantity employed, and in suppurating wounds it soon becomes a filthy mass.

In contrast to the various methods that have been referred to, an entirely different practice—that of the open treatment—has, of late, been brought to the notice of the profession. In a work by Dr. Krönlein, recently published,§ the author relates the results of the treatment of wounds during two different periods in the surgical wards of the hospital of Zurich. During the first of these periods,

* Surgical Pathology, translated by Hackley, page 156 et seq.
† The Medical Record, Dec. 1, 1873.
‡ Op. cit., page 160.
§ The London Medical Record, April 1, 1874.

from 1860 to 1867, the wounds were covered in the ordinary way; during the second, from 1867 to 1871, the open treatment was pursued systematically.

For purposes of comparison, the following classification of cases was made: 1. Amputations; 2. Extirpations of the Breast; 3. Compound Fractures; 4. Accidental Surgical Diseases.

The mortality of the two series as regards amputations was :—

	First period.	Second period.
Thigh,	31 in 36, or 86·1 per cent.	10 in 28, or 35·7 per cent.
Leg,	21 in 36, or 58·3 " "	2 in 11, or 18·1 " "
Foot,	6 in 17, or 35·2 " "	3 in 15, or 20 " "
Upper arm,	10 in 18, or 55·5 " "	2 in 14, or 14 " "
Forearm,	4 in 24, or 16·6 " "	0 0
Hand,	0 0	0 0

The cases of extirpation of the breast showed a mortality of 32·3 per cent. in the first period, and of 13·6 per cent. in the second. The time of healing was 43 days in the former, 67 days in the latter.

Of the cases of compound fracture, 22 in 86, or 25·5 per cent., died under the ordinary treatment; 14 in 65, or 21·5 per cent., under the open.

Pyæmia and septicæmia occurred less frequently during the second than in the first period.

The time of healing was usually longer during the second period.

By the open method, healing by the first intention was not attempted. Care was taken to secure all bleeding vessels; cleanliness and a free exit for the discharges from the wounds were obtained. Stitches, bandages and all dressings were discarded.

Aside from the reduced mortality asserted to be due to the method as practised at Zurich, for purposes of observation and clinical instruction it has great advantages; because the wounds are so readily exposed to full view, and the healing or other processes are so easily seen.

On the other hand, no opportunity is given for the immediate healing of wounds, and there is wanting that support afforded by properly-applied bandages and strappings, which is in itself a comfort to the patient, and an aid to the process of healing. A source of danger at once occurs to the mind, as to whether intermediary and secondary hæmorrhage would not be likely to take place, owing to the want of sufficient support to the divided vessels of the wound. In fact, of several cases treated at the Middlesex Hospital on the open plan, in two this very accident occurred.*

This question of the open treatment of wounds, or of their closure by dressings, is not of recent discussion. From very early times, we find it occupying the attention of surgeons. Bonetus, in his "Guide to the Practical Physician," published two hundred years ago,† states that "*Cæsar Magnatus* and Septalius following him disapprove of the old way of curing wounds, used hitherto by all physicians and surgeons who every day, at least once, do cleanse and wipe them, and when they have applied new medicines bind them up again. And they blame *Galen* that, passing by the indication of most moment, he was only intent upon the lesser, that is, abstersion of the excrements and filth, the cause that breeds them being neglected, and all care of conserving the temperament and innate heat of the part;

* The Lancet, April 11, 1874.
† London, 1684. Article, Vulnera.

which, and the strength of the part, if they be taken care of, they think there will be a far less increase of excrements. And they think the heat of it will be cherisht, and strength will be added to it, if it be hindered from expiring, and its quality be preserved. Which they think they are able to obtain, by making up the defect of a natural covering with a Medicine analogous and familiar to the temper of the part; by means whereof the heat may be cherished, and its quality may be helped by its like. Whence they gather, that for to defend this heat, wounds must be seldom opened, lest the ambient Air do hurt them. But," continues Bonetus, "since the same Persons confess, that most grievous wounds have been cured by the old way of cure, and they cannot deny, but this new one has only place in simple wounds, and where the wounded party is of a good habit of Body, where great Vessels are not hurt, and the Nerves are whole; besides, there are many wounds, by their own confession, which Nature is not able to cure, unless the impediments be removed by a Surgeon, as if the Body be Cacochymick, whence comes great store of excrements, which cause Pain, Corruption of the Part, Inflammation, Worms, proud flesh and the like: Finally, since the exceptions exceed the rule, which very rarely allow the use of this new way, we must insist upon the old one, approved for many ages."

The ancients sometimes had a faith in infallible and quite complicated methods of healing wounds, similar to that which is presented in modern times, as will be evident from another quotation from Bonetus, which will compare well with some equally elaborated formulæ of these so-called more enlightened days.

"This," says Bonetus, "cures all Wounds, to a Miracle:* Take of Aqua Vitæ thrice distilled, and well rectified 2 pounds, St. John's-wort, Hyssop, Millefoil, each 2 handfuls, Frankincense, Myrrhe powdered, each 3 ounces. Infuse them 4 days, and distill them in Balneo or in Sand. Keep it. When you have closed the wound, wet it with this water, by pouring it upon the Wound, and laying on Pledgits, wet in it, with Powder of Myrrhe, Mastiche, Frankincense, Sarcocolla Bole-Armenick, Dragon's Blood, each equal parts. Make a powder; and strew it upon the suture wet with water, and apply upon that a Pledgit wet in oyl of Turpentine, and bind it, do not unbind it till the fourth day, and once every day foment the Wound as it is bound, and wet it with the same *Aqua Vitæ:* On the fourth day loose the ligature, and you will find the wound healed; but if you should not find the Wound healed, do the same again, and open it not for 3 days, wet the Wound every day, as before, then loose it, and cure it as before for 2 days."

In view of the conflicting theories, and the various dissimilar practices, recently advocated regarding the dressing of wounds, no apology is needed in calling the attention of even a learned body to the subject, and in presenting anew some practical considerations that may guide us in their proper treatment.

One point to be aimed at should be *simplicity of method.* The less complicated the dressings of a wound are, provided they fulfil all the requirements of the case, the better. The want of simplicity would be a fatal objection to Lister's method, unless it should be proved to be greatly superior in its results to any other. In the open treatment

* Op. cit., page 660.

of wounds, we have simplicity of method carried to the extreme; but, not to repeat the seeming objections to the method that have already been noticed, it is not probable that practitioners are quite ready to entirely discard sutures, strapping and bandages in the dressing of wounds. As to the application of bandages, it is well to bear in mind an old saying of Hippocrates, that it is better to apply a number of bandages to insure firmness of dressing, than a single one too tightly.

Another point of the highest importance, the neglect of which is a serious error, is *to provide, in the start, for a free exit for the discharge of any fluid that may form or collect in a wound.* In no case should the edges of a wound be so tightly confined, in their whole extent, by sutures, or otherwise, that a chance for drainage is not secured. This rule holds good for simple incised wounds, even the smallest, and where we expect healing wholly by first intention. This provision for the drainage of a wound does not preclude the proper coaptation of its edges, nor interfere with the promptness of its healing if, fortunately, there should be no accumulation of fluids within it, but will prevent suffering, and perhaps disaster, should such an accumulation occur. We have heard experienced observers say that they have seen more trouble from the neglect of this simple precaution on the part of general practitioners in dressing wounds than from most, if not all, other causes put together. As an instance of this neglect, who has not known, in wounds of the scalp, pus to burrow extensively, dissecting the tissues from the skull in every direction, thereby converting what might have been a comparatively slight lesion into one of the gravest import?

Another point that we should take pains to secure is *rest to the wound.* Especially is this true of wounds resulting from amputations. Whatever dressing we may at first apply, whether it is dry or moist, we should endeavor, during the first two or three days, to leave the wound as undisturbed as possible. If the bandages seem to be too tightly applied, they may often be partially cut away to loosen, without materially disturbing, the dressing of the wound. In this way, an opportunity is given for its early healing, if such will take place, while the granulations which form on its edges afford a barrier to the passage of septic agents, if such are present in the vicinity of the wound. Whatever views we may adopt regarding the possibility of such a mishap, all of us can but recognize the desirableness that whatever attempts at repair may be going on shall not be impeded by unnecessary interference on our part.*

The importance of pure air and of cleanliness, equally necessary in all methods of treatment, need hardly be mentioned at this time.

A chief object of this paper, while enumerating some of the more recently promulgated, and at times conflicting, methods of treating wounds, has been to re-state some of the leading principles sanctioned by the most prominent surgeons through all time, which are too apt to be lost sight of while maintaining sensational measures and startling schemes, but which must not be ignored, if the practitioner wishes to escape disasters, and to obtain the best results in any case put under his charge. Though these may be deemed small matters—minor surgery, so called—still the subject often involves serious conse-

* Vide remarks of Messrs. Savory and Callender on Pyæmia, before the Clinical Society of London. British Medical Journal, March, 1874.

quences to the attendant as well as to the patient, and has the highest classical as well as professional authority for its importance; for, of old, Homer sang:—

"A wise physician skilled our wounds to heal,
Is more than armies to the public weal."*

THE ACTION OF THE SOFT PALATE IN SPEAKING AND SWALLOWING, AS SEEN THROUGH THE NOSE IN CERTAIN CASES.

By F. I. KNIGHT, M.D.

Instructor in Harvard University; Physician to Out-patients with Diseases of the Throat at the Massachusetts General Hospital.

THE views of writers and experimenters in regard to the position of the soft palate in speaking, have, in times gone by, been very contradictory; on the one hand, some affirming that in the pronunciation of vowels, for instance, the soft palate was raised even to a complete closure of the posterior nares, and others maintaining that it remained unmoved.

Bidder *(Neue Beobachtungen über die Bewegungen des weichen Gaumens)*† had an opportunity of observing the action of the soft palate in speaking, through a large opening in the nasal region, and found that in the pronunciation of the vowel sounds the palate was indeed raised, but that the posterior nares were not completely closed.

Shuh *(Wiener Medizinische Wochenschrift*, Jan. 16, 1858)‡ communicates observations which he had the opportunity of making on a patient from whose nasal region he had removed a growth, with considerable loss of substance of the nose. He was able, on this account, to obtain a good look down upon the soft palate. He watched its action, both in deglutition and in phonation. He found that, in the pronunciation of the vowels, the soft palate was always raised. This elevation of the palate he found to be least in the pronunciation of A (ah), not up to a horizontal line; with the other vowels, he found it to be raised above the horizontal line, most by I (ee), a little less by U (oo), and still less by O (oh) and E (ay), no difference having been noted between the two latter.

Shuh observed a rising of the soft palate, at least to the horizontal line, with all the movements except the nasals.

The uvula was never visible from the nose.

These observations of Bidder and Shuh are the only ones, as far as I know, in which there has been a direct inspection of the soft palate through the nose, and in both of these there was an abnormal opening.

Although it has been noticed that by anterior rhinoscopy, in favorable cases, the posterior wall of the pharynx can be seen, yet no one seems to have hitherto observed the action of the soft palate through the healthy nose. I have recently had two patients, through whose well-dilated nostrils, by using reflected light, I could see well the action of the soft palate, in speaking and swallowing. In one of the cases, I tried all of the vowels. My results were essentially the same

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* Iliad, xi. 635-6.

† Ueber die Verschliessung des Schlundes beim Sprechen. Dr. Gustav Passavant. Frankfurt, a. M. 1863.

‡ Passavant. Loc. cit.

as Shuh's, the soft palate rising highest with I (ee), the least with A (ah), and there being not much difference between the others. I tried a few consonants, only, but with the same result.

I do not doubt there are many cases in which this action can be well seen through the nose. It has not been noticed before, because it is only since the perfection of laryngoscopy that we have usually employed strong, reflected light in examining the nose, and because, during the examination of the anterior nares, the patient does not usually speak or swallow, and so bring the soft palate up into the line of vision.

Progress in Medicine.

REPORT ON PHYSIOLOGY

By H. P. Bowditch, M.D.

[Concluded from page 12.]

Glycogenesis.

Since the publication of the report on the glycogenic function of the liver, in January, 1873, considerable progress has been made in our knowledge of this function. The results of recent investigations have been admirably presented by Dr. T. Lander Brunton, in three lectures on the pathology and treatment of diabetes mellitus, published in the *British Medical Journal* for January and February, 1874. To these the reader is referred for details which would be out of place in this report.

The so-called glycogenic function of the liver really consists of two separate and distinct processes: first, the formation of glycogen from the materials supplied by the food and its accumulation in the cells of the liver; and, secondly, the change of this glycogen into sugar and its return to the circulation. The liver thus acts as a storehouse, in which organic substances can be held in reserve when presented in quantities greater than are needed for the immediate use of the organism, and from which they can be given out in a form adapted for rapid consumption whenever they may be needed. In this respect, the liver is analogous to the roots and seeds of plants, which accumulate starch and cane sugar during one season's growth, and at some subsequent period change it to glucose to provide for the further growth of the plant or for germination. This and other interesting analogies between plants and animals have been pointed out by Bernard in his lectures on "vital phenomena common to plants and animals." (*Revue Scientifique*, July–December, 1872.)

It must not be supposed, however, that the liver is the only organ which acts in this way to store up organic substances for future use. The muscles have this same power, and it has been shown by Weiss (*Wiener Sitzungsberichte*, lxiv. p. 284) that they retain their glycogen more tenaciously than the liver, for a considerable amount of glycogen has been found in the muscles of starved animals after it has entirely disappeared from the liver, and muscles are found to retain their irritability as long as glycogen remains present in them. In the embryo, nearly all the tissues are found to contain glycogen. In fact, wherever future growth or work is to be provided for, there glycogen seems to be accumulated.

The first question which presents itself in the study of glycogenesis is: What is the origin of glycogen? The experiments of Dock, already reported,* have shown that the ingestion of glucose increases the amount of glycogen in the liver, and point to the direct transformation, by a process of dehydration, of the former substance into the latter. This view derives confirmation from the experiments of Schöpffer (*Archiv für exp. Pathologie*, i. p. 73), who, following the lead of Bernard, injected a solution of glucose into the crural vein of a rabbit, and found that glycosuria resulted, while a similar injection into a radicle of the portal vein had no such effect, provided that it was not made too rapidly. It seems, therefore, that the liver has the power of removing from the blood, and storing up in the form of glycogen, the glucose brought to it from the intestine by the portal vein. This power is, however, not unlimited; for, if the sugar be brought too rapidly into the portal system, either by absorption (Bernard, *Revue Scientifique*, ii. 1066) or by direct injection, a portion of it will pass unchanged through the liver, reach the general circulation and be excreted by the kidneys. A similar effect may be produced by a ligature on the portal vein (Bernard, *Revue Scientifique*, ii. 1108). Here the sugar absorbed from the intestine reaches the general circulation by collateral channels, causing glycæmia and glycosuria. In this connection, it is interesting to note a case of diabetes reported by Andral, in which the autopsy showed obliteration of the portal vein. It should be mentioned here that the blood of the portal vein seems to contain sugar in an appreciable amount only while digestion is going on.

Many observations seem to show that the glycogen of the liver may also be formed from albuminoid substances. Bernard has shown that the liver of a dog fed upon lean meat contains a much greater quantity of glycogen than that of a fasting animal. Starving dogs, fed on gelatine and fibrin, have also been found to have an increased amount of glycogen in the liver. In the report of January, 1873, reasons were given for supposing that a certain amount of albuminoid material is absorbed unchanged from the intestine and is used for the formation of the tissues, while the peptones, after absorption, are not reconverted into albumen, &c., but, by successive decompositions, reach the form of urea and are thus excreted. A natural extension of this hypothesis is, that the liver is the organ where the decomposition of peptones chiefly takes place, and that glycogen is the form in which the non-nitrogenous products of this decomposition are stored up. The occurrence of nitrogenous substances in the bile may be regarded as an argument in favor of this view. On the other hand, it has been found by Weiss (*Centralblatt für die medicinischen Wissenschaften*, 1873, p. 552) that hens, kept on a diet of fresh meat and fibrin, lose nearly the whole of the glycogen from their livers. How far this is to be regarded as indicating a fundamental difference between birds and mammalia is a question to be settled by future investigations.

There seems to be a pretty general agreement among those who have occupied themselves with the question of glycogenesis, that fatty substances in the food do not give rise to glycogen in the liver. It has, however, been shown by Luchsinger (*Pflüger's Archiv*, viii. 289) that glycerine, when taken into the stomach, causes an increase of glycogen in the liver; owing, probably, to a direct transformation of

* This JOURNAL, January 23, 1873.

glycerine into glycogen, and not, as Weiss *(loc. cit.)* supposes, to the glycerine being used up in the place of the glycogen, thus allowing the latter to accumulate. It seems, therefore, probable (though not yet demonstrated) that the ingestion of fats may produce a similar effect, for Kühne *(Physiologische Chemie,* 1868, p. 125) has shown that the pancreatic juice has the power of decomposing neutral fats into fat acids and glycerine.

Whatever may be the particular articles of food which give rise to the formation of glycogen in the liver, there is no doubt that it accumulates in well-fed and disappears in starving animals. A change into glucose is, moreover, a necessary preliminary to its removal from the liver.

The next question, therefore, is: how is this change into glucose effected? That it is a process of fermentation is universally admitted. That the ferment which produces the change is brought to the liver by the blood seems pretty well established, for the observations of v. Wittich *(Pflüger's Archiv,* vii. 28) and others, that a change of glycogen into sugar takes place after the vessels of the liver have been washed entirely free from blood, cannot be regarded as proving that the ferment is formed in the hepatic cells, since, as pointed out by Plosz and Tiegel *(Pflüger's Archiv,* vii. 391), the process of washing out the liver with pure water, as practised by v. Wittich, is well adapted to dissolve out the ferment from the blood globules, which are supposed to contain it, and fix it in the coagulating hepatic parenchyma.

Since, therefore, the ferment in question is contained chiefly, if not wholly, in the circulating blood, it is evident that anything which causes an increased flow of blood through the liver will, by bringing a larger amount of the ferment into contact with the glycogen, produce an increased formation of glucose. If glucose be thus formed in excess of the needs of the system, so that it accumulates in the blood to an amount greater than one-third of one per cent. (Bernard), it will be excreted by the kidneys, and glycosuria will result. Now, an increased flow of blood through the liver may be caused in various ways. In the first place, the stoppage of any of the larger arteries will, by raising the blood tension, force a larger supply of blood through the liver, the calibre of the hepatic vessels being supposed to remain unaltered. This is probably the explanation of the diabetes observed by Schiff as the result of ligaturing large vessels. A rise of blood tension, also, is probably the cause of the diabetes which has been observed in the convulsions of asphyxia (Pavy, *On Diabetes,* pp. 62, 68 and 145) and epilepsy (Trousseau, *Clinique Médicale,* 3d ed., ii. p. 736).

A dilatation of the hepatic vessels, the blood tension remaining the same, will also cause an increased flow of blood through the liver. This dilatation may be the result either of direct or of reflex paralysis of the vaso-motor nerves of the liver. A direct paralysis of these nerves is the probable explanation of the diabetes caused by the section of the anterior columns of the cervical cord (Schiff, *Zuckerbildung,* p. 108), or by extirpation of the last cervical and first dorsal sympathetic ganglion (Cyon and Aladoff, quoted by Brunton, *British Medical Journal,* 1874, p. 39). The experiments of Cyon have rendered it probable that these lesions affect chiefly the size of the hepatic artery, causing little or no change in the calibre of the portal vein.

A reflex paralysis or inhibition of these vaso-motor nerves may be produced by irritation of centripetal fibres in the vagus nerve, and glycosuria may be thus produced (Bernard, *Physiologie Experimentale*, i. pp. 334–339). The well-known effect of a puncture of the floor of the fourth ventricle in producing glycosuria is probably to be referred, in part at any rate, to an irritation of the vagus nerves at their origin, while the glycosuria sometimes noticed as the result of ether and chloroform inhalation (Schiff, *Zuckerbildung*, 124) seems to be due to an irritation of the same nerves at their terminations in the lungs. It would seem, however, from recent observations of Seelig (*Centralblatt für die medicinischen Wissenschaften*, 1873, p. 934) that the "sugar puncture" not only causes an increased change of glycogen into sugar in the liver, but also prevents the sugar which is brought to the liver by the portal vein from being stored up as glycogen in that organ. Seelig found that a starving animal which had received the "sugar puncture" showed little or no sugar in the urine, but that an injection of glucose into a mesenteric vein caused immediate glycosuria, while a similar injection into a starving animal which had received no "sugar puncture" had no such effect. Similar results were obtained by injection of glucose into the jugular vein, proving, according to Seelig, that "the diabetic animal is characterized by an inability to use sugar for the nourishment of its body." These results are hardly to be explained on the supposition that the "sugar puncture" causes merely a dilatation of the hepatic vessels, allowing more of the ferment contained in the blood to come in contact with the glycogen of the liver. Further experiments are needed, before any satisfactory hypothesis can be advanced.

The third question which presents itself in the study of glycogenesis is: What is the destination of the glucose which is formed in the liver in the manner above described? That the healthy organism is able to consume all the sugar formed within itself is evident from the fact that normal urine contains no appreciable amount of sugar. It would even seem from the experiments of Tieffenbach (*Centralblatt für die medicinischen Wissenschaften*, 1869, p. 179) that still larger amounts may be consumed, for it was found that *small quantities* of glycogen or glucose could be injected into the veins or under the skin without causing glycosuria. In what particular part of the body sugar is consumed is a question not easy to settle, for it has been shown that sugar disappears very rapidly from the blood when withdrawn from the body. Hence, the importance of the rule laid down by Bernard (*Revue Scientifique*, iii. 43), when testing the blood for sugar only to use warm blood fresh from the vessels of the animal. It is not improbable that a similar rapid disappearance of sugar takes place in the circulating blood, irrespective of the organs through which it circulates. There is, however, reason to suppose that a very considerable sugar consumption takes place in the muscles, for it has been shown by Genersich (*Ludwig's Arbeiten*, 1870, p. 75) that defibrinated blood loses sugar on being conducted through a dog's hind legs, freshly separated from the body, and still retaining their muscular irritability. This disappearance of sugar is, moreover, quite in accordance with what is known of the effect of muscular activity in increasing the exhalation of carbonic acid. It cannot be supposed, however, that glucose is directly oxidized to carbonic acid, for it has been

shown (Bernard, *Physiologie Experimentale*, i. 241) that blood shaken with oxygen does not lose its sugar faster than with other gases. Moreover, it has been found that as sugar disappears from the blood lactic acid takes its place, and muscles when kept in prolonged activity are found to have an acid reaction, due to the formation of lactic acid within them. There is, therefore, no reason to doubt that a change into lactic acid by a process of fermentation is the first step in the disappearance of glucose from the organism. This view is also in accordance with the observations of Scheremetjewski (*Ludwig's Arbeiten*, 1868, p. 114), who found that the injection of alkaline lactates into the blood caused an increased absorption of oxygen and exhalation of carbonic acid, while an injection of glucose had no such effect.

The experiments of Schultzen on phosphorus poisoning (*Zeitschrift für Biologie*, viii. 124, and *Berliner Klinische Wochenschrift*, 1872, p. 417) throw light upon this subject. The action of phosphorus is, according to Schultzen, to arrest the processes of oxidation in the organism, while those of fermentation go on unchecked. He finds that in animals poisoned by phosphorus "urea disappears from the urine, and is replaced by leucine and tyrosine, which, in the healthy organism, are converted into urea. No sugar appears in the urine, but a kind of lactic acid is found in quantities exactly proportional to the amount of sugar afforded to the animals by their food. This kind of lactic acid agrees exactly in its properties with the aldehyde of glycerine, and Schultzen considers the two bodies to be identical."* The production of this substance from glucose by a process of fermentation seems, therefore, to be a necessary preliminary to oxidation, and if for any reason this preparatory fermentation does not take place, the glucose, not being oxidizable as such, is excreted by the kidneys, and glycosuria results. This seems to be the case in some forms of diabetes, and in the experiments of Scheremetjewski, above alluded to.

To recapitulate briefly. The liver has two functions:—1st, that of forming and storing up glycogen; and, 2d, that of forming sugar again from glycogen. The muscles probably possess both of these functions, and also a third function, viz., that of changing both the sugar they form and the greatest part of that which they receive from the blood into lactic acid, which undergoes combustion.

Glycosuria may result,

1st, from failure of the liver to convert into glycogen the sugar obtained from the food, either because it is brought in too large quantities to the liver, or because the liver has not the power to effect the change in question. This may be called alimentary glycosuria, and may be prevented by avoiding saccharine articles of food.

2d, from an increased transformation of glycogen into sugar, due to accelerated circulation through the liver, or to a larger proportion of ferment in the organ or the blood. (The possible participation of the muscles in the production of both these sorts of glycosuria must be borne in mind.)

3d, from a diminished consumption of sugar in the organism, "due either (a) to insufficiency of the ferment, which should convert the sugar into lactic acid, (b) to an altered quality of the sugar which enables it to resist the action of the ferment, or (c) to diminished circu-

* Brunton's third lecture, loc. cit.

lation through the muscles preventing the sugar from coming sufficiently into contact with the ferment."*

Bibliographical Notices.

Responsibility in Mental Disease. By HENRY MAUDSLEY, M.D. New York: D. Appleton & Co. 1874. 8vo. Pp. 300.

THIS book belongs to the International Scientific Series, and is the most practically valuable of them all. It deals with a subject of vast importance to the public, as well as to the two professions of law and medicine. The law, in most countries, lags a long distance behind the advance of true science in this matter of insanity, and the public is in a deplorable state of ignorance on the subject, in spite of all that has been of late written and said. Both law and public opinion must and will, sooner or later, range themselves side by side with those of our profession whose duty it is to uphold what are generally considered unpalatable, not to say revolutionary, truths. All those doctrines of moral, partial and transitory insanity, of limited responsibility, of dipsomania, kleptomia, and the heredity of vice and crime which have been scouted in court and by the press, but upheld here and elsewhere by professional alienists, are simply expressions of scientific truth. They may have been crudely and inadequately presented, without a sufficient array of supporting facts, but they grew out of the *experience* of those who advocated them.

In this book of Maudsley, we find all those questions relating to responsibility in various forms of insanity ably discussed, with a power of argument and a wealth of illustration seen in no other writer, unless it be our own American authority, Dr. Isaac Ray. In the first two chapters, he considers the border land between sanity and insanity, and between the latter and vice or crime. Chapter III. is devoted to classification. In Chapter IV., the relation of the law to insanity is historically considered. Thanks to certain recent intelligent decisions in the Supreme Court of New Hampshire, the United States takes the lead in a rational and scientific treatment of this question. (See JOURNAL, May 15, 1873, p. 501.) After referring to *State* vs. *Jones*, *Boardman* vs. *Woodman*, *State* vs. *Pike*, and *State* vs. *Weir*, the author says:—"These American decisions are certainly an advance on any judgment concerning insanity which has been given in this country; they put in a proper light the relations of medical observation and law in questions of mental disease, and it cannot be doubted that future progress will be along the path which they have marked out."

In Chapter V., partial insanity is considered; and by this is meant disorder apparently confined to one of the three grand divisions of mind, or even to a limited range within such division. *Affective*, as distinguished from intellectual insanity, has two principal forms, viz., *impulsive* and *moral* insanity. The former is seen in simple melancholia and in *mania sine delirio*, in the form of suicidal and homicidal impulse. It is also seen as a transitory mania in persons inheriting an insane neurosis, or an epileptic neurosis, in the absence of any other distinctly marked evidence of insanity or epilepsy. There is nothing strange in this when we consider the impulsive tendency in all forms of insanity, amounting often to a true ideational instead of motor convulsion. Hegner, the murderer of Hüttel, while quietly disclaiming insanity and justifying his act as purely one of self-defence, suddenly sprang upon the expert examining him, and as suddenly relapsed into his former calm condition.

Moral insanity is seen as *a stage* of general insanity almost invariably, and when we remember the slow development of most mental diseases, it is not strange that many outbreaks of violence should occur before the intellect becomes visibly affected. Suicides in this stage are occurring every day, and

* Brunton, loc. cit.

the death of the sufferer cuts off the evidence of insanity which a few more weeks would have undoubtedly afforded. So, when homicide is the form taken by the insane impulse, the law steps in, sees no insanity, because there is no evident delusion, and hangs the patient off hand, likewise cutting off all chance of further evidence of disease. This policy is bad enough as at present applied to *mad dogs;* it is simply barbarous when applied to the human species.

The same blind haste has distinguished the law heretofore in dealing with all forms of vice and crime. Little allowance is to be made for morbid tendencies or inherited moral deficiencies. These questions will, however, continually force themselves upon public attention, until even the law takes careful note of them. Seclusion, more or less permanent, in proper institutions, under suitable medical supervision, must take the place of capital punishment, or of ordinary imprisonment, whenever insanity is present. It is then that the degree of responsibility in any given case can be most precisely estimated and the proper discipline administered.

In most cases of affective insanity, sooner or later, intellectual derangement occurs, either in the form of weakness or delusion. It may be for a long time of a character to escape notice. It may seem to warrant some interpretation consistent with sanity. The intellectual impairment is often *partial*, in that the patient seems to reason well, except on a certain subject. Even in that direction, he may seem to be only mistaken and not necessarily deluded, as in that common form of mental disease where the delusion is a belief in the unfaithfulness of husband or wife, or of hostility and persecution on the part of friends. Homicide is often the offspring of this sort of insanity. The motive may appear, or be made to appear by a zealous attorney, as natural and sufficient. It is a mistake, in such cases, to say the patient has a sane mind, "insane on one point." He has really an insane mind, which manifests disease, mainly in one direction. The soil from which the belief and the act grow is an underlying state of insane *feeling*, of morbid jealousy, suspicion, irritability, tending to acts of impulsive violence. The patient may seem to be affected by ordinary motives, may commit the deed with deliberation and conceal it with skill, and yet be only a *madman*, taking an *insane* revenge. If he is in a state of *alienation* from his mental self, the act cannot be *his*.

The fallacy of the legal dogma propounded by Hoffbauer, that an insane man's actions are the logical outcome of his delusions, is well shown in Chapter VI. It is not true that he reasons logically from insane premises, in most cases, and it is not safe to punish him for acts which cannot be shown to have a connection with his delusion. There is not only incoherence between his ideas, but between his ideas and acts. It is impossible to infer one from the other, or to predicate what a man will do, under certain delusions. Patients often reason insanely from insane premises, and act insanely regardless of their conclusions.

The delusions are often concealed so that the most skilful experts are unable to elicit them, or to disentangle the relations between them and the patient's conduct. For instance, a boy's insanity was chiefly manifested by an intense passion for wind-mills. He would sit all day watching them, and was sent from home to break up this apparently harmless fascination. Not long after, he set fire to a house, and subsequently horribly cut and mangled a child whom he enticed into the woods for the purpose. The connection between these acts and his *penchant* for windmills is not apparent, though in this case it was direct and simple. He expected to be sent back where there were windmills!

We have space only to commend this book to all classes of readers, and especially the closing chapter, on the prevention of insanity. T. W. F.

Electro-therapeutics: A condensed Manual of Medical Electricity. By D. F. Lincoln, M.D., Physician to the Department of Diseases of the Nervous System, Boston Dispensary. Philadelphia: H. C. Lea. Pp. 186.

This little book is, considering its size, one of the very best of the English treatises on its subject that has come to our notice, possessing, among

others, the rare merit of dealing, avowedly and actually, with principles, mainly, rather than with practical details, thereby supplying a real want, instead of helping merely to flood the literary market.

The first thirty-eight pages are devoted to electro-physics, and contain an interesting examination into the enormous disproportion that exists between the amounts of absolute force which electrical currents, such as are used in therapeutics, actually represent, and the amounts that by their physiological action they are able to set free in the human body.

Thus, he says, (p. 22) that a current (from 50 small, galvanic cells) which in five minutes could decompose only about 6-1000ths of a gramme of water (with a resistance in the circuit comparable to that actually offered by the body) might, if applied in certain ways, keep a number of powerful muscles in continuous tetanus during the same time.

In the next thirty pages, the principles of electro-physiology are as clearly stated as the space admits, clearly enough to repay careful reading.

The remaining two-thirds of the book are devoted to diagnosis, methods of application, medical and surgical practice, cautions and apparatus.

The practical portion of the work, though in almost all other respects excellent, is not altogether free from the common fault of short treatises, that of attempting to cover the same field with long ones, often at the cost of making statements that mislead, because inadequate, and of passing too hastily over matters which might well be classed with "principles;" further, of giving too prominent a place to the triumphs won by electricity, in classes of cases where it has not, as a rule, proved of great service, or not to the extent that the text would indicate, or where it has not yet become possible to form an opinion.

The average reader has no means of judging of the credibility of authorities cited, nor how large—or small—a percentage "sometimes" represents, and desires to find in a good manual, especially one professing to deal with principles, a mirror of what his own experience *is likely* to prove, and, indeed, he always feels a little insecure, if he does not find a statement of the author's own opinion in each case. For example, p. 129, "chorea is sometimes benefited, &c.," would more fairly read, ". . . is generally not." Compare, also, cerebral and spinal congestion, &c., and spinal irritation, p. 121; paralysis of the bladder, p. 123; skin diseases, p. 134.

Dr. Lincoln's style is usually remarkably clear, and the whole book is readable and interesting.

Materia Medica for the Use of Students. By JOHN B. BIDDLE, M.D., &c. &c. Sixth Edition, Revised and Enlarged, with Illustrations.

THIS is a new edition of a well-known text-book. The author states that he has "bestowed unusual care upon the preparation of the present edition, having re-cast and often re-written the therapeutical articles."

Having a firm conviction that it is well to keep materia medica and therapeutics somewhat distinct in the minds of students, we may look upon this book, if to be used as a text-book, chiefly as a work on materia medica, properly speaking, and leave therapeutics, which no one would, from internal evidence, suppose to have been re-written for some years, on one side. A classification, which places oat-meal, Indian-meal, arrow-root and sugar among "demulcents" with liquorice, collodion, yeast and charcoal, cannot be considered as conveying any very useful ideas to the student or practitioner.

In matters of materia medica proper, we may simply remark that it is not very carefully written; the information is in the main correct, but one would hardly consult it in disputed matters, and it is not up to the present standard of pharmacy in some important particulars.

Thus apomorphia is spoken of as one of the original alkaloids of opium, and nothing is said of it among emetics. To give an instance, the discrepancies in observations upon narceia are noted, but nothing is said of the probability that the substances experimented upon have not been the same.

The methods of giving phosphorus are very deficient. The dose of phos-

phide of lime is stated as one sixty-sixth of a grain, while it is usually given in the dose of one-tenth, and even this corresponds to a very small dose of phosphorus. The few pages devoted to mechanical remedies, pneumatic aspiration, heat, cold, and electricity are far too meagre to be of any practical value.

It is a pity the work is not accurate, careful and thorough enough to fill the place it is designed for.

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Transactions of the Minnesota State Medical Society. Saint Paul. 1874. Pp. 86.

DERMOID CYST IN THE ANTERIOR MEDIASTINUM.—Heinrich Kückmann, of Marburg, has recently endeavored to cure a case of the above by establishing a fistulous opening externally. The tumor had been noticed for two years, and a mass as large as a goose's egg projected externally into the neck, on the left of the middle line, and pressed on the trachea. To confirm the diagnosis, a puncture was made in the neck; but, though it was kept open; it did not prove sufficient to drain the cyst. The cyst at last perforated a bronchus, and led to repeated attacks of pneumonia, whilst masses of hair were occasionally found in the sputa. Under these circumstances, the sternum was trephined immediately beneath the intra-clavicular notch, and by chiselling away the upper end of the manubrium, a hole was made *through the bone into the cyst.* As a result of regularly repeated injections of air through the wound made by the trephine, the material in the cyst and that which had escaped from it into the bronchus were removed by the expectoration of copious and offensive sputa, loaded with particles of hair. The second fistula was kept open by laminaria tents at first, and afterwards by inserting a canula. In spite of several relapses in the patient's general condition, the injections of air were regularly continued, in order to remove the putrid bronchial secretions and favor the expectoration of the masses of hair. The cyst still communicates externally, but it is now no larger than a walnut, and it is confidently expected that in time it will completely disappear.—*Medical Times and Gazette*, June 27, 1874.

Boston Medical and Surgical Journal.

Boston: Thursday, July 23, 1874.

The early accounts, which have come to us up to the time of writing, of the college sports, held during the past week at Saratoga, indicate clearly that the movement, inaugurated within a few years, on the part of the various colleges and universities by which a new impetus has been given to the college races, and also to manly sports of all kinds, has not yet reached that degree of organization which is necessary to insure success in the future, and is, indeed, in some danger of resulting in total failure, a result much to be regretted by all who rejoice to see that physical training is in a fair way to become a more popular element in the education of young men in this country. We allude, more particularly, to the mishaps which have occurred during the last few years, helping, in a great measure, to mar the success of the University boat race, and becoming a source of much heart-burning and disappointment to students who have devoted a great deal of their time and energies to preparation for the struggle. After the shortcomings of those who had charge of the races last year, it was hoped that every precaution would be taken on this occasion to ensure a fair trial of the strength and endurance of the various participants. And, so far as we can learn, everything was done that could be done consistent with the present mode of conducting the races. It is fair to suppose, therefore, that the system itself is at fault, and that various radical changes will have to be adopted to prevent a repetition of the confusion which attended the race this year. It is, doubtless, a difficult matter to conduct a contest with perfect fairness to all parties, where the numbers participating are so great, but there are certain obvious changes which, from the experience of the past years, will, we hope, suggest themselves to those who have charge of the races in the future. Among these may be mentioned the system of steering, which American oarsmen cling to so tenaciously, a most important element of success, and one which, in an unguarded moment, may set at naught the careful preparation and training of months. There are, doubtless, many other improvements which might be introduced by earnest reformers, and all efforts directed to this end we are sure would meet with hearty approval. The important bearing of these annual contests on the taste of our American youth for physical culture, and on their love for manly sports, cannot easily be over-estimated, and it is earnestly to be hoped that they eventually may become a permanent institution.

A CORRESPONDENT of the *Boston Evening Transcript* takes exception to certain "ill-natured flings" which he says have recently appeared in the columns of this JOURNAL against the good name of one "Dr." Basto. It would hardly require the intimation given in another part of the same paper to convince one that the writer is not an expert on the questions which have given rise to his communication. The want of knowledge which the "Doctor's" friend displays is so lamentable that a reply would hardly seem to be necessary were it not for the support which his accusations receive from the paper in which they appear. While we can admire the loyalty of the friend, and even make some allowances for his ignorance, we have no excuse to offer for a paper which ought to be able to take a more intelligent and impartial view of such a matter. The person in question was the representative of a certain class of men against whose practices the profession has a right to protest, and the press in this city is largely responsible for the fact that any adventurer, whether he happens to bear a Thompsonian or other so-called "sheepskin" in his pocket, or wears it only upon his shoulders, can claim equal rights with the most conscientious and thoroughly educated practitioner. Nor is the profession wholly without blame for this state of things; a little more education in these matters, which the profession itself has the power to convey, would, doubtless, prove wholesome to the reputations of some representatives of the press, whose proclivities are but too well known, and judicious legislation, now sadly needed, would drive away a large class of irregular practitioners who thrive upon an ever credulous public.

PATHOLOGY AND TREATMENT OF OVARIAN DISEASES.—*(Concluded from page 67.)*—Of the mysterious productions known as dermoid cysts, the only part of their history about which there can be any certainty is, that they are the result of change in an ovum. There may be a doubt as to whether the abnormality takes origin in an ovum of the individual bearing the tumor, or in the ovum from which she herself was developed; in other words, whether the tumors are abnormally developed or are due to inclusion. They do not originate from impregnation, since they have been found in newly-born children, and their most common seat is in the ovaries of young women, chiefly, according to Mr. Spencer Wells, of fair complexion. The author is also inclined to set aside the view of their origin by inclusion, as the ovary is the most unlikely structure in the embryo for such a process; and, if they had their origin in such a way, we ought to find dermoid cysts in the testicles of the male quite as often as in the ovaries of woman.

There is left, then, the explanation that dermoid cysts are the result of altered nutrition of one or more ova, usually of but one. They are generally unilocular. They have no analogy to cysts somewhat resembling them in structure occurring in other parts of the body than the ovary, especially in the neighborhood of the orbit. In these latter, we have only aberrations of the normal process of the involution of epithelium.

Dermoid and dentigerous cysts have been so frequently found in children, that it may be suspected that, if their histories could be traced, they would

be found to be, as Paget suggests, either congenital or originating very early in life. It seems impossible that new tissues, so strange and displaced, should be developed after the formative powers have ceased to produce new tissues in normal positions. It seems far more simple to explain the occurrence of dermoid cysts in the ovary by hyperechetic action of an ovum at a time of life when such processes are in vogue in the economy, than at some other time when they have entirely ceased everywhere else. Fully dilated Graafian follicles have been seen in the ovaries of newly-born children containing ova which are minute, transparent and structureless cells, and the formation and destruction of ovarian cells goes on from the earliest to the latest period of existence. Supposing that, during the developmental period of life, some stimulus be given to one Graafian follicle and its contained ovum, which, for want of better knowledge, we call accidental, and that this should lead to the premature maturation of the ovum, so that, were the rest of the organism ready for the process, it might be carried into the uterus and there impregnated. Instead of destruction by rupture of the ovisac, supposing that it remain in the ovisac and share alike with the rest of the economy in developmental activity, there can be only one result, and that is the formation of structures in an incomplete way, which it would evolve completely under more favorable conditions. The usual age for dermoid cysts to come under the notice of the surgeon is from 17 to 20 years, and then it is generally certain that they have been long in existence. After puberty, the recurrent congestion of the whole sexual apparatus must stimulate into growth what is in readiness for it after having been developed long previously. Dermoid cysts, then, are believed to be the result of hyperechetic development of an ovum in fœtal or infantile life, growing into a tumor during and immediately after puberty.

Of the modes of origin of the other forms of ovarian cystic tumors, the explanations are too vague and incapable of ready demonstration to commend themselves to practical minds. All non-cancerous tumors of the ovary may be considered adenoid, for they are the result of increased growth of one or other normal constituent of the gland, without alteration, save in quantity. The common form of cyst-growth in the ovary consists in the dilatation of a physiological cyst-cavity by its own secretion poured out to an abnormal extent; and this secretion may be altered by the addition of blood or of some of its usual or exceptional albuminous products. The multiple adenoid and dermoid cysts have already been considered, and we look to another altered condition of the cell-elements to explain the remaining variety of cystic tumor of the ovary, termed by Mr. Wells and others "proliferous." To this term "proliferous," Mr. Tait objects, for it assumes what is not true, that the large cysts are the parents of the small ones. The minor cysts are secondary in point of time, but they are younger brothers and sisters, not the children, of the larger sacs.

The formation of a compound cystic tumor in the ovary may be well illustrated by blowing soap-bubbles in a basin. If the fluid be not viscid enough to enable the bells to retain their form, then the normal condition of the ovary is represented, its cells bursting and disappearing. The cell-growth is constantly going on, and there occurs some alteration in the state of matters which prevents the cell-walls bursting; the fluid in the basin is so viscid that the bells do not break, and bubble after bubble is formed, some larger, some smaller, until a large, multicystic tumor is the result. The actual appearances of the cystic ovary may be very well imitated in the basin of soap-lees. A large cyst can be made with little ones crowding into it, and the walls between two or three may be broken down, making one larger multilocular cyst. In the ovary, we have the continued production of cells, representing the continuous blowing of the bubbles, and we have only to discover what it is that is analogous in the ovary to the increased viscidity in the solution of soap; what it is that keeps the cysts in their entirety, perverting a physiological into a pathological process.

The fact that he has never found ova in any of the sacs of these multicystic tumors has led the author to entertain the opinion that in this we have an explanation of their formation. The function of the ovary is one of cyst-

formation from its earliest to its latest existence, and in its pathology we need not go far away from its physiology. The aim and object of this cyst-formation is the production, maturation and discharge of the ovum. But, if the ovum be not found, or if it be produced only to a rudimental extent, may it not happen that the cyst will not be ruptured, but go on aimlessly expanding? Whatever be the source of the change, it does not affect one ovisac alone, but it may influence many of them; whether it be in a tumor where the ova have been matured and subsequently prevented from escaping by sclerosis of the coat of the ovisac, or in a growth where the ova are not to be found. There is a great clinical difference between these two kinds of tumor; for in one the growth is very limited and slow, and in the other it may be, and often is, extremely rapid, and is practically unlimited in extent.

Correspondence.

Directions for Restoring Persons Apparently Drowned.

Messrs. Editors,—We have not an original copy of the Massachusetts Humane Society's directions for resuscitating those apparently drowned, but, in some of the newspapers, a paragraph has been recently printed, purporting to be a genuine transcript of that Association's circular, issued October 1, 1855. The writer of this article sent to one of the papers a statement of the errors in these directions; but as no notice has been taken of it, it is worth while to print it in this Journal. The following is the rule, as laid down in the papers:—

"Convey the body to the nearest house, with head raised. Strip and rub dry. Wrap in blankets. Inflate the lungs by closing the nostrils with thumb and finger, and blowing into the mouth forcibly, and then pressing with hand on the chest, and so on, for ten minutes, or until he breathes. Keep the body warm, extremities also. Continue rubbing—do not give up so long as there is any chance of success."

Error 1*st.* The body should not be allowed to remain without attention long enough to carry it to any house. Half a minute of time lost in carrying it may determine the death of the body.

Error 2*d.* The head should on no account be raised, but the shoulders should. Raising the head may be the means of preventing a gasp for breath.

Error 3*d.* The direction for inflating the chest, if followed, will, in a large majority of cases, be the means of blowing up the stomach, and diminishing the chance of getting air into the lungs. Any medical man who has tried to inflate the chest of a still-born child knows the absurdity of the direction.

The trunk should be raised to an angle of 120 or 130 degrees, the flexion being at the hip-joints. The head should be allowed to fall back between the shoulders, so as completely to close the entrance to the stomach. Now, if the nostrils be closed, the lungs may be inflated by blowing into the mouth. To do this in the most easy manner, a dry towel or other cloth of linen or cotton may be thrown over the face, by which the nose may be held more easily than with the bare fingers; through this the current of air may be more easily thrown into the chest, the two mouths being more perfectly packed together.

The remainder of the directions are well enough. Remember that a still child has been made to breathe an hour after it was supposed to be dead.

C. E. B.

Epilepsy in a Child; Death.

Messrs. Editors,—The history of the following case, transcribed from my case-book, presents some phenomena that have interested me because they are not mentioned in the books to which I have referred, and they seem anomalous, though they may be familiar to the older readers of the Journal.

S. K., æt. 2, Salem, 3d November, 1873. Large head, but well-formed; flabby flesh, with white skin; large trunk, small legs. Is beginning to walk. Appetite good. Bowels inclined to be constipated. Sleep restless. Pupils normal.

From no known cause, since his fourth month, has had from two or three to six or more spasms every day. They are preceded for some minutes by his picking his fingers and twining them together. Will fall to floor unless caught up by mother. Eyes roll up, no frothing at mouth, straightens out for three or four minutes, then puts hands to head, as if in pain there, and afterwards goes to sleep.

Child takes no notice of objects, as toys, &c., or of children.

He is in almost constant motion. Moves head continually from shoulder to shoulder, or shakes it as in emphatic negation, and, when walking or standing, body sways from side to side, as he lifts first one foot and then the other, which gives rise to a waddling gait.

Paternal grandfather began to have "fits" at the age of twenty years, which, under quack treatment, ceased for nine years, when they recurred. Latterly, the paroxysms were so violent as to require several men to restrain him. Would bite tongue, and foam at mouth. He died at an asylum for the insane. An infant brother of this child also died of "fits."

Ordered Dr. Brown-Séquard's mixture.

29th December.—Now sleeps well. Has "fits" less frequently than formerly, but they are more severe and are accompanied by stronger convulsive contractions of the limbs. Seems well nourished, and is growing fast.

In March, he had a convulsion in the night that lasted fifteen minutes, with foaming at the mouth.

In May, at solicitation of mother, omitted the bromides, &c., and ordered *zinci oxidum*. Child now says, "Mamma," and seems to recognize persons. Cries to go out of doors. Is not yet able to handle a spoon or feed himself, nor does he have a taste for toys or childish sports. Continues the movements of head and body. Still has two or three light spasms daily, when he becomes rigid, and falls unless prevented.

June 21st.—Was more restless, but appeared as well as usual during the day. At 5.45 o'clock, P.M., he awoke from a nap, frothing at the mouth, and passed into general convulsions. Right side of face first drawn up, so attendants state. Half an hour after, found pupils widely dilated, with anæsthesia of the cornea, pulse 200, and perhaps more, with convulsive working of facial muscles, and, to a less extent, those of the rest of the body. Face pallid (and so remained), surface of body hot and bathed in sweat. Respiration labored and stertorous. From time to time the spasmodic action would cease, only to return as severe as before. Ordered a tepid bath and cold to head. At 9 o'clock, P.M., as condition had not changed, allowed patient to inhale a little ether, and the twitchings soon stopped, the respiration became as natural as the mucus in the air-passages would allow (which was so abundant as to flow freely from the mouth), while the pupils contracted to their ordinary size. Thinking the danger over, I left.

According to the accounts of persons present, the convulsions speedily reappeared, and with such force as to necessitate the restraining of the sufferer's arms and legs, till he died, at 11.45 o'clock, when the convulsive seizures had lasted six hours.

Tanner and other observers speak of what appears to be but a stage of epilepsy, which they term *eclampsia nutans*, and which is characterized by a frequent bowing or nodding of the child's head. Though this patient's head did not nod, the same general symptoms were presented as in the *salaam convulsions*.

In this case, it is not improbable that death was occasioned by apnœa, due to the prolonged duration of the attack and the accumulation of mucus in the mouth and larynx. Unfortunately, however, it was not possible to make an autopsy.

Yours very truly,

Salem, July 5, 1874. DAVID COGGIN.

ANOTHER OBSTETRIC BINDER.

ERIE, PA., July 13, 1874.

MESSRS. EDITORS,—In your two last numbers, I find articles on the "obstetric binder." I think I have one much better than the "twisted sheet," though I must confess I took it from the sheet as seen in France before I came to this country. Allow me to describe it.

It consists of a leather back-pad twelve by eight inches, two straps nine feet long, each attached to the upper corner of each side of the pad, and short straps furnishing stirrups to fit the entire foot, which can be lengthened or shortened as needed. The ends of the long strap are thrown around the foot-posts and returned to the patient's hand. These, while her feet are in the stirrups, enable her to push and pull as much as she desires. I find it expedites labor very much, and I would not be without one. Do not confound this with the old fashioned "harness."

Yours truly, I. N. LABARTE, M.R.C.S.I.

Medical Miscellany.

IT is stated that the negotiations with von Recklinghausen for Rokitansky's chair have been again broken off—this time, it is believed, finally.—*Philadelphia Medical Times.*

IT is a matter of regret that we have not a law in this country similar to the 40th clause of the Medical Act of England which provides that "Anyone who shall wilfully and falsely pretend to be or take the name or title of a . . . doctor of medicine . . . or any name . . . implying . . . that he is recognized by law as a physician . . . or a practitioner in medicine," shall pay a sum not exceeding £20.

ACCORDING TO THE *Philadelphia Medical Times*, Mr. Erichsen is soon to visit this country. He will leave England on the 30th of July, and after spending a few weeks in Canada, where he has friends, will visit the United States.

THE profession in England have been somewhat startled to learn that English surgeons and physicians are not allowed to practise their profession in Chili. The Dean of the Chilian Faculty of Medicine has refused to allow British physicians to practise because "medical knowledge imparted in Great Britain was greatly inferior to that required before a degree of Doctor of Medicine could be obtained in Chili." This must, indeed, be "somewhat astounding" news to Englishmen. Whatever the merits of this particular instance may be, we are glad to hear that they have a standard in Chili, and should be still more content to learn that America had, although tardily, followed the example of other nations in this respect.

RETRO-PERITONEAL HERNIA.—Professor Waldeyer, of Breslau, publishes an article on this subject in *Virchow's Archiv*:—

An account is given of the *post-mortem* examination of a robust man, æt. 40, who died of double pneumonia. There was found a perfectly-developed, retro-peritoneal hernia, which comprised the whole of the small intestines. The colon occupied its normal position. The great omentum, rather fatter than usual, concealed the small intestines; when this was reflected, it was seen that the coils of bowel were enclosed in a rather thick, whitish sac, which included the whole mass of the small intestine. This sac had both the appearance and the structure of serous membrane, and was closely connected on all sides with the parietal peritoneum of the posterior wall of the abdomen, as well as with the peritoneum of the ascending and descending colon, its structure and texture being identical. It had numerous vessels of its own, with ramifying fat; it was quite transparent, and free from any signs of peritonitis. A median incision made it easy to remove the mass of intestine. The mesentery was normal. From the interior of the sac, it was easy to

discover that its neck corresponded to a point very nearly opposite the cæcum. The lower end of the ileum passed through this, and dragged upon the cæcum. The opening was nearly circular, as large as a two-thaler piece; its edges slightly thickened. The inferior mesenteric vein arched over the upper edge and free border of the opening. There were no signs of strangulation, and the coils of bowel could be easily drawn into and out of the sac. The bowel had forced its way into the duodeno-jejunal fossa, and had gradually pushed the right fold of the descending mesocolon before it, and thus formed a sac for itself. The neck of the sac had originally lain higher, at the junction of the duodenum with the jejunum, and had thus been forced lower with the weight of the mass. Waldeyer thinks the inferior mesenteric vein might easily have given rise to a constricting ring at the neck of the sac. —*The London Medical Record*, June 17, 1874.

NOTES AND QUERIES.

A Query concerning "Quaker Bitters."

Messrs. Editors,—I have a few questions to ask about an advertisement of bitters, which is somewhat scattered about. It contains a certificate. This certificate contains names and titles. It purports to be from *Prof.* Hayes. It is signed S. Dana Hayes, 20 State St., Boston. Who is *Prof.* Hayes? Is he *Professor* in the same college that made Dio Lewis a *Doctor?* Who is J. A. Brodhead, Esq., State Commissioner of Massachusetts? And in what department is his commissionership? The certificate says, that quaker bitters is an "officinal medicinal preparation." What does an "officinal" preparation mean? Has some one been trying to insult and injure S. Dana Hayes, State Assayer and Chemist, by calling him *Professor* sarcastically? and by making him appear to say what he never would have said, and never could have said, that quaker bitters is an "officinal" preparation, because it never was and never will be? Quere.

Castanea Vesca in Pertussis.

Messrs. Editors,—Advise your readers to make trial of the leaves of the edible chestnut, *castanea vesca*, in cases of whooping cough, and report the results. A hot infusion, three or four drachms to the pint, well sweetened, may be given to a child, as much as he will drink during the day. See U. S. Dispensatory, page 1558 (13th ed.).

The remedy is better known by the druggists than by physicians, and the leaves, fresh and dried, or an extract, are extensively sold in New York and Philadelphia for the alleviation, if not cure, of pertussis. Mr. Markoe will soon have ready an extract of chestnut leaves, which it is hoped will prove as satisfactory a remedy in the hands of others as it has in the practice of C. E. S.

July 13, 1874.

Erratum.—On page 80, twelfth line from the bottom, for "movements" read *consonants.*

Mortality in Massachusetts.—*Deaths in twelve Cities for the week ending July* 11, 1874.

Boston, 105; Worcester, 10; Lowell, 19; Salem, 5; Lawrence, 15; Springfield, 3; Gloucester, 4; Fitchburg, 3; Newburyport, 3; Somerville, 8; Fall River, 17; Holyoke, 5. Total, 197.

Prevalent Diseases.—Cholera infantum, 21; consumption, 20; pneumonia, 13.

F. W. DRAPER, M.D.
Secretary pro tem. of the State Board of Health.

Deaths in Boston for the week ending Saturday, July 18th, 132. Males, 66; females, 66. Accident, 4; abscess, 1; apoplexy, 1; disease of bladder, 1; inflammation of bowels, 3; disease of bowels, 1; inflammation of brain, 1; congestion of brain, 1; disease of brain, 4; cancer, 6; cholera infantum, 17; consumption, 21; convulsions, 5; cleft palate, 1; cyanosis, 1; debility, 3; diarrhœa, 3; dropsy, 1; dropsy of the brain, 1; diabetes mellitus, 1; epilepsy, 1; erysipelas, 1; exhaustion, 1; scarlet fever, 1; typhoid fever, 3; bilious fever, 1; disease of the heart, 5; intemperance, 1; jaundice, 1; disease of the kidneys, 2; laryngitis, 1; disease of the liver, 2; congestion of the lungs, 3; inflammation of the lungs, 7; marasmus, 6; measles, 2; old age, 1; paralysis, 1; puerperal disease, 3; rheumatism, 1; sunstroke, 1; teething, 2; tumor, 2; tabes mesenterica, 1; whooping cough, 3; unknown, 1.

Under 5 years of age, 62; between 5 and 20 years, 7; between 20 and 40 years, 30; between 40 and 60 years, 20; over 60 years, 13. Born in the United States, 89; Ireland, 30; other places, 13.